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The Problem

The 670,000 service members deployed in 1990–1991 to Southwest Asia for Operations Desert Shield and Desert Storm (the Gulf War) were different from the troops deployed in previous similar operations: they were more ethnically diverse, there were more women and more parents, and more activated members of the Reserves and National Guard were uprooted from civilian jobs. The overwhelming victory that they achieved in the Gulf War has been shadowed by subsequent concerns about the long-term health status of those who served. Various constituencies, including a significant number of veterans, speculate that unidentified risk factors led to chronic, medically unexplained illnesses, and these constituencies challenge the depth of the military's commitment to protect the health of deployed troops.

Recognizing the seriousness of these concerns, the U.S. Department of Defense (DoD) has sought assistance over the past decade from numerous expert panels to examine these issues (DoD, 1994; National Institute of Health Technology Workshop Panel, 1994; IOM, 1996a,b, 1997; Presidential Advisory Committee on Gulf War Veterans' Illnesses, 1996). Although DoD has generally concurred in the findings of these committees, few concrete changes have been made at the field level. The most important recommendations remain unimplemented, despite the compelling rationale for urgent action. A Presidential Review Directive for the National Science and Technology Council to develop an interagency plan to address health preparedness for future deployments led to a 1998 report titled *A National Obligation* (National Science and Technology Council, 1998). Like earlier reports, it outlines a comprehensive program that can be used to meet that obligation, but there has been little progress toward implementation of the program. Recently, the Medical Readiness Division, J-4,

of the Joint Staff released a capstone document, *Force Health Protection*, which also describes a commendable vision for protecting deploying forces (The Joint Staff, Medical Readiness Division, 2000). The committee fears that the vision outlined in that report will meet the same fate as the other reports.

With the 10th anniversary of the Persian Gulf War now here, the Committee on Strategies to Protect the Health of Deployed U.S. Forces has concluded that the implementation of the expert panels' recommendations and government-developed plans has been unacceptable. For example, medical encounters in theater are still not necessarily recorded in individuals' medical records, and the locations of service members during deployments are still not documented or archived for future use. In addition, environmental and medical hazards are not yet well integrated in the information provided to commanders. The committee believes that a major reason for this lack of progress is the fact that no single authority within DoD has been assigned responsibility for the implementation of the recommendations and plans. The committee believes, because of the complexity of the tasks involved and the overlapping areas of responsibility involved, that the single authority must rest with the Secretary of Defense.

The committee has concluded that immediate action must be taken to accelerate implementation of these plans to demonstrate the importance that should be placed on protecting the health and well-being of service members. This report describes the challenges and recommends a strategy to better protect the health of deployed forces in the future. Many of the recommendations are restatements of recommendations that have been made before, recommendations that have not been implemented. Further delay could result in unnecessary risks to service members and could jeopardize the accomplishment of future missions. The committee recognizes the critical importance of integrated health risk assessment, improved medical surveillance, accurate troop location information, and exposure monitoring to force health protection. Failure to move briskly on these fronts will further erode the traditional trust between the service member and the leadership.

In recent years, U.S. service members have frequently deployed to smaller-scale contingency operations, including operations that involve humanitarian assistance, disaster relief, peacekeeping, enforcement of sanctions, arms control, counterterrorism, counter-drug action, and counter-insurgencies, with the range of combat risk being from low to high (Reuter, 1999). The potential settings of deployments have multiplied along with the types of operations that might be required. Many different climates and terrains are possible and must be factored into the consideration of potential deployment scenarios. The challenges posed by rapidly expanding technologies and interaction with coalition partners during deployments also must be met. This changing environment requires DoD to respond in less traditional ways and has greatly influenced the preparation of this report.

As of the end of February 2000, more than 40,000 U.S. personnel—active-duty, reserves, and civilian employees—were deployed to 15 operations. The largest number in a single deployment was nearly 16,000 participants in Operation Southern Watch, whereas some of the smaller operations had as few as 10

deployed personnel (LTC G. Harper, Personnel Readiness Division, Joint Chiefs of Staff, personal communication, March 2, 2000).

This increased deployment schedule and the increased mobilization of reserve personnel to support these deployments may contribute to problems with recruitment and retention. The Army fell 6,290 individuals short of its goal of 74,500 new recruits in fiscal year 1999. During fiscal year 2000, the Army's goal is to enlist 80,000 active-duty individuals (Army News Service, 1999). Trust in DoD leadership will be enhanced when political leaders and military commanders communicate to the general public a clear rationale for any future deployments, particularly in operations other than war, coupled with a sincere commitment to the health and well-being of affected service members.

The events that followed the conclusion of the Gulf War are instructive. Despite the different makeup of the force and the low casualty rate, national leaders, remembering Vietnam, did anticipate some postconflict health concerns and initiated programs to address them. The programs were chiefly focused on helping veterans readjust to civilian life and cope with the aftermath of war.

However, shortly after returning from the Gulf, some men and women began to experience debilitating illnesses and complained that they were not being taken seriously by physicians in DoD and the U.S. Department of Veterans Affairs (VA). As the number of these veterans increased, first VA and later DoD established registries to identify and treat these veterans' illnesses. Although the majority of these veterans had readily diagnosed illnesses, for a significant number of veterans their illnesses remained medically unexplained, which led to much speculation about the possible relationship of their illnesses with various risk factors, other than combat, that were present in the Gulf (Presidential Advisory Committee on Gulf War Veterans' Illnesses, 1996). Several expert committees were asked to examine those various risk factors and to determine whether a "unique" Gulf War illness with a known cause could be established (DoD, 1994; National Institutes of Health Technology Workshop Panel, 1994; IOM, 1996a,b; Presidential Advisory Committee on Gulf War Veterans' Illnesses, 1996). Each of these panels concluded that there was no evidence consistent with the existence of a unique illness and that no single cause could be established. That remains the case, despite a vigorous research portfolio examining multiple hypotheses put forward as possible explanations for the medically unexplained physical symptoms experienced by these sick veterans. This continuing controversy highlights, in a very visible way, the tensions that exist between expectations and realities, between science and politics, and between policy and execution.

In the summer of 1996 Deputy Secretary of Defense John White met with the leadership of the National Research Council and the Institute of Medicine to explore the idea of a proactive effort to learn from lessons of the Gulf War and other deployments (e.g., those to Somalia, Haiti, and Bosnia) and to develop a strategy to better protect the health of U.S. troops in future deployments. DoD sought an external, independent, and unbiased evaluation of its efforts regarding the protection of U.S. forces in four areas: (1) assessment of health risks during deployments

in hostile environments, (2) technologies and methods for detection and tracking of exposures to a subset of harmful agents, (3) physical protection and decontamination, and (4) medical protection, health consequences and treatment, and medical record keeping. Particular emphasis was to be placed on chemical and biological warfare injuries and disease and non-battle injuries from chemical contaminants in the environment. These studies were conducted concurrently by the Commission on Life Sciences, Commission on Engineering and Technical Systems, and the Institute of Medicine, all components of the National Research Council. The four technical reports and a workshop summary prepared by these units were completed in the fall of 1999 (IOM, 1999; NRC, 2000a–d). These reports were circulated to various divisions, services, and agencies within DoD with responsibilities in these technical areas. Comments were received in writing and in person.

In the study's final year, the present Institute of Medicine committee was formed and used those responses and the reports developed by the four respective sets of principal investigators and advisory panels as a starting point to inform this final report (the executive summary of each technical report is included in Appendixes B to E of this report; the statement of task is found in Appendix A). The committee believes that these technical reports can stand on their own merits and endorses the recommendations that they contain. It has not been the present committee's intent to recapitulate or summarize those reports. Rather, the committee used them to extend the findings and recommendations that it considered to be most important to a long-term strategy for protection of the health of deployed forces, and to expand on broader, cross-cutting issues. The committee urges deliberate action to bring about concrete changes in response to recommendations in those reports.

The committee's overriding concern is that everything consistent with mission accomplishment be done to protect the health and lives of U.S. service members who are knowingly placed in harm's way. The committee understands that the changes will be costly and will inflict the pain of organizational change. The Department of Defense, however, has the obligation to avoid unnecessary disease, injury, disability, and death as it pursues the accomplishment of its missions. Not to fulfill that obligation would be simply unconscionable.